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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,343	03/25/2005	James Hayden Brownell	434817	8895
Curtis A Vock Lathrop & Gage 4845 Peal East Circle Suite 300 Boulder, CO 80301				
EXAMINER				
STAFFORD, PATRICK				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,343

Applicant(s)

BROWNELL, JAMES HAYDEN

Examiner

PATRICK STAFFORD

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-14, 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) 11-14, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Claim 10 amended 21 December 2007.

Response to Arguments

Applicant's arguments filed 21 December 2007 have been fully considered but they are not persuasive.

In response to applicant's argument that the restriction of claims 2-10, 11-14 and 16-17 be withdrawn, the amended claims directed to a system for generating FIR laser radiation comprise a grating element which does not have a V-groove and vertex to the flat base, as the claims directed to the grating element require. The requirement is still deemed proper and is therefore remains FINAL.

In response to applicant's arguments, the recitation a grating horn has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

In response to applicant's argument that '956 does not teach the pair of grating elements being oriented in phase, '956 teaches a pair of grating elements (Fig. 5, parts 50 and 52), which are adjustable (col. 11, lines 50-61) and so capable of being arranged in phase.

In response to applicant's argument that '043 does not teach both a rectangular and a triangular component and a ruling in the rectangular and triangular component, the claim states "wherein each of the grating elements is ruled in the triangular and rectangular components and parallel to the flat base." The claim does not require the rulings to be inside the rectangular and triangular components, but instead requires triangular and rectangular components and the grating element is ruled. This is taught by '043, which teaches both triangular (col. 8, lines 30-35) and rectangular components (col. 8, lines 10-16) and rulings in the grating element (col. 11, lines 7-11 and Fig. 9A, part 16).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, '956, '043 and '075 were combined in the rejection of claim 6. The motivation to combine was for the purpose of producing a more sharp moire pattern, which is taught by '075 in column 6, lines 35-39, as cited in the previous office action on page 4.

In response to applicant's argument that the combination of '956, '043 and '075 would not yield a workable device, the test for obviousness is not whether the features of a secondary reference

may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (U.S. Patent 4,852,956, hereafter '956) in view of Walsh (U.S. Patent 5,263,043, hereafter '043).
Claim 2: '956 teaches a grating horn, comprising:

a flat base (col. 11, lines 21-22 and Fig. 5, part 44) and a pair of grating elements attached to the base (col. 11, lines 25-31 and Fig. 5, parts 50 and 52), each of the grating elements being ruled with a grating period (col. 5, lines 16-18), the grating elements oriented in phase and in substantial symmetry about a normal to the flat base (col. 11, lines 54-61).

'956 does not explicitly teach the electron beam interacting with the grating elements produces Terahertz radiation. However, '043 teaches the use of grating elements (col. 4, lines 20-24) interacting with an electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use a grating element interacting with an

electron beam producing Terahertz radiation (col. 3, lines 59-62) in order to provide a tunable FEL device.

Claim 3: '956 and '043 teach the grating horn of claim 2. '956 teaches the grating elements forming a V-groove and vertex to the flat base (Fig. 5, formed in between parts 56 and 58).

Claim 4: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating elements being ruled perpendicular to a face of the grating element (col. 10, lines 56-59).

Claim 5: '956 and '043 teach the grating horn of claim 3. '956 teaches the vertex intersecting the flat base (Fig. 5, formed in between parts 56 and 58 intersecting base 44).

Claim 7: '956 and '043 teach the grating horn of claim 3. '956 teaches the vertex comprising a flat portion (Fig. 5, formed in between parts 56 and 58).

Claim 8: '956 and '043 teach the grating horn of claim 3. '043 teaches the rulings of the grating elements are parallel to the flat base (col. 11, lines 7-11 and Fig. 9A, part 16).

Claim 9: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating elements forms a bevel edge, wherein each of the grating elements is ruled between the bevel edge and the flat base (col. 12, lines 18-24 and Fig. 13A, part 16).

Claim 10: '956 and '043 teach the grating horn of claim 3. '043 teaches each of the grating elements comprises a triangle component (col. 8, lines 30-35) and a rectangular component (col. 8, lines 10-16), wherein each of the grating elements is ruled in the triangular and rectangular components and parallel to the flat base (col. 11, lines 7-11 and Fig. 9A, part 16).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (U.S. Patent 4,852,956, hereafter '956) in view of Walsh (U.S. Patent 5,263,043, hereafter '043) and further in view Hamada et al (U.S. Patent 4,972,075, hereafter '075).

Claim 6: '956 and '043 teach the grating horn of claim 3. They do not explicitly teach the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base. However, '075 teaches the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base (col. 6, lines 35-39) in order to give a sharp moiré pattern. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use a grating with the vertex non-intersecting the flat base, wherein rulings of the grating elements extend between the vertex and the flat base in order to give a sharp moiré pattern.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK STAFFORD whose telephone number is (571)270-1275. The examiner can normally be reached on M-Th 7:30-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick Stafford/
Examiner, Art Unit 2828

/Minsun Harvey/
Supervisory Patent Examiner, Art Unit 2828